

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA**

TAMMY KITZMILLER; et al.

Plaintiffs,

V.

DOVER AREA SCHOOL
DISTRICT; et al.,

Defendants.

Civil Action No. 04-CV-2688
(M.D. Pa.)

Hon. John E. Jones III

Defendants' Proposed Rebuttal Findings Of Fact And Conclusions Of Law.

**DEFENDANTS PROPOSED
REBUTTAL
FINDINGS OF FACT
AND
CONCLUSIONS OF LAW**

**DEFENDANTS' PROPOSED FINDINGS OF FACT
BY WAY OF REBUTTAL¹**

1. Intelligent design is science. Intelligent design is not a religious proposition; it is a scientific argument. Plaintiffs' conclusion that intelligent design is a religious proposition is erroneous and this Court so finds. Plaintiffs' conclusion is based on faulty logic, misrepresentations of the evidence and arguments, and *ad hominem* attacks. (See P-FF 1-121).
 - a. Contrary to Plaintiffs' assertions, the evidence plainly shows that well-credentialed scientists, such as Professor Behe and Professor Minnich, are proponents of intelligent design because it is a scientific theory that provides, what they believe to be, the best explanation for the empirical evidence. v. 18 (Behe); 29:4-25-30:1-3; v. 37 (Minnich); 21:1-25-22:1-20. They find support for their arguments in

¹For ease of reference the Defendants' have used the same volume designations as the Plaintiffs in their post-trial submissions. When referring to Defendants' Proposed Findings of Fact and Conclusions of Law (as opposed to those filed by way of additional rebuttal, Defendants will cite them as D-FF or D-CL and by appropriate number; Plaintiffs' will be referred to as P-FF or P-CL. Defendants have not reiterated their initial proposed findings and conclusions by way of rebuttal but incorporate those by reference in general, and direct the Court's attention to specific findings or conclusions in order to address inference or argument in the Plaintiffs' proposed findings and conclusions.

the peer-reviewed literature and based on their own experimental work. v. 18 (Behe); 112:11-23; v. 37 (Minnich); 24:14-25-25:1-7; v. 18 (Behe); 113:11-22; v. 37 (Minnich) 24:6-13; v. 37 (Minnich); 25:8-25-27:1-11; v. 18 (Behe); 114:1-3; v. 37 (Minnich); 26:22-25-27:1-11. This Court finds that intelligent design is science.

2. Intelligent design is not creationism nor does it advance a religious belief.

a. As Plaintiffs' experts acknowledge and as the evidence overwhelmingly demonstrates, intelligent design is not based on any religious authority or tenet of religious faith nor does it seek to demonstrate the veracity of any religious authority or tenet of religious faith, which is contrary to creationism or creation science (*compare* P-FF 17-29). v. 20 (Behe) 96:4-25-98:1-5; v. 16 (Padian); 72:19-25-73:1-3.² Indeed, Plaintiffs religion expert, Professor Haught, conceded during cross-examination that it is misleading to conflate creationism with intelligent design. v. 9 (Haught); 50:15-25-51:1-22. As the evidence demonstrates, intelligent design is based on empirical, observable facts about biology plus logical inferences

²Professor Alters testified that intelligent design does not depend on any religious faith, is not dependent on the Bible to reach its conclusions, and is not dependent on sacred Scripture to reach its conclusions. v. 15 (Alters); 35:16-24. Professor Padian testified that intelligent design does not have as its objective the goal to validate Bible stories or any particular religious or creation stories. v. 16 (Padian) 73:1-3.

(*compare* P-FF 34-58). v. 18 (Behe); 89:20-25; 90:1-5; v. 18 (Behe); 112:1-10; v. 37 (Minnich); 45:5-9; 48:6-25-52:1-10. In contrast, creationism and creation science do not require physical evidence—they rely solely on religious doctrine or authority for their conclusions. v. 20 (Behe): 97:1-98:1-5. Intelligent design is not a religious belief nor does it advance religion or a religious belief. v. 18 (Behe); 87:11-15; v. 20 (Behe); 96:14-25; v. 37 (Minnich); 133:4-25-135:1-17. This Court finds that intelligent design is not creationism nor does it advance a religious belief.

3. Intelligent design advances scientific arguments. Plaintiffs erroneously contend that the argument for design is theological and not scientific because it is similar to an argument advanced by William Paley, a famous theologian. (P-FF 1-3, 84). However, as prominent Darwinian biologist Richard Dawkins noted in *The Blind Watchmaker*, contrary to Plaintiffs' characterization, the argument advanced by Paley is based in logic and it is a legitimate argument for the biological sciences. v. 18 (Behe); 105:5-25-106:1-20. In fact, it is an argument based on inductive reasoning—the very kind of logic that is used in science and that intelligent design proponents employ in making their arguments. v. 18 (Behe); 106:21-25-108:1-9;

109:14-17. Plaintiffs are engaging in the fallacy of the *ad hominem*, seeking to discredit the logic employed in the inductive reasoning used by intelligent design proponents because it was used at one time by a theologian. Richard Dawkins acknowledged the legitimacy of the logic employed in the argument for design, and so too does this Court.

4. Intelligent design makes testable, scientific claims.

a. As Professor Miller testified, science does not prove things, it disproves them. v. 2 (Miller) 92:11-16. Professor Behe demonstrated in an article published in a peer-reviewed journal and during his testimony that intelligent design is a testable, scientific proposition, and he proposed the test to demonstrate it. v. 18 (Behe); 124:14-25-129:1-15; D 203-H at 697. During his testimony, Professor Minnich confirmed the applicability of this test and offered another way in which intelligent design could be tested. v. 37 (Minnich); 118:23-25-120:1-13. This test was a variation of the test proposed by Professor Behe. In comparison, the evidence shows that natural selection is not so readily testable or falsifiable. v. 18 (Behe) 127:9-25-129:1-15; D 203-H at 697-98. Indeed, as Defendants' evidence showed, even the "peer-reviewed" articles relied upon by Plaintiffs, in particular, those

presented at trial by Professor Miller, demonstrate the very speculative nature of the claims made in support of Darwinian processes. v. 20 (Behe); 39:24-25-49:1; D 300-NN through 300 UU. Intelligent design proponents insistence on a detailed, testable, rigorous Darwinian explanation for the origin of new complex biological features (v. 19 (Behe) 28:18-25-29:1-3) is hardly “setting a burden of proof for the theory of evolution that is scientifically unreasonable,” as Plaintiffs claim (P-FF 78). As the prominent paleontologist Simon Conway Morris conceded, “When discussing organic evolution the only point of agreement seems to be: ‘it happened.’” v. 37 (Minnich) 60:7-25-61:1-14; D 255. In a book published by Oxford University Press, Professor Franklin Harold wrote, “We must concede that there are presently no detailed Darwinian accounts of the evolution of any biochemical system, only a variety of wishful speculations.” v. 19 (Behe); 29:18-25-30:1-6. Thus, the evidence indicates that the Darwinian theory of evolution (i.e., natural selection) is not as strong as Plaintiffs claim. In fact, Plaintiffs often conflate the evidence for the occurrence of evolution—change over time—with the evidence for the mechanism

of evolution—natural selection. v. 19 (Behe); 13: 22-25-14:1-10.

Students should be able to recognize and differentiate between

speculation and actual data that supports a theory. v. 20 (Behe);

48:19-22. This Court finds that DASD's policy promotes this valid scientific and educational purpose.

5. Plaintiffs misrepresent intelligent design arguments.

- a. Plaintiffs mischaracterize the concept of irreducible complexity in order to argue against it (*see* P-FF 64-80). v. 19 (Behe); 57:17-25-60:1-13. Professor Miller inaccurately claims that the essence of the biochemical argument from irreducible complexity is that the individual parts of the machine have no function of their own. v. 2 (Miller); 13:21-24; 18:3-16; v. 3 (Miller); 41:24-25-42:1-22. That is not the concept of irreducible complexity advanced by intelligent design proponents. v. 19 (Behe); 59:16-25-60:1-13.
- b. Professor Minnich has worked extensively on the bacterial flagellum and the type III secretory system (TTSS); they have been the focus of his research, writing, and experimental work for the past 10 years. v. 37 (Minnich); 9:22-25-10:1-14; 18:4-11; 53:24-25-54:1-6. He has received competitive research grants for his work on these molecular

systems. v. 37 (Minnich); 41:12-25-42:1-9. In comparison, Professor Miller, a cell biologist who admittedly is less involved in experimental work (v. 1 (Miller); 34:5-24), does not have similar expertise with regard to these systems. Undoubtedly, Professor Minnich is a subject matter expert on these particular molecular systems, and it is his expert opinion that the bacterial flagellum is irreducibly complex, providing credible scientific support for intelligent design and critically undermining Plaintiffs' claims (*see* P-FF 73-74). v. 37 (Minnich); 110:2-25-117:1-12; D 301-M.

- c. Plaintiffs inaccurately claim that intelligent design requires the action of a supernatural creator acting outside the laws of nature. (*See* P-FF 4, 5, 12-16). This is a misrepresentation of intelligent design. Undoubtedly, Plaintiffs seek to shoehorn this case to fit within *Edwards v. Aguillard*, 482 U.S. 578 (1987). However, the evidence demonstrates otherwise. Intelligent design does not require the action of a supernatural creator (v. 18 (Behe); 86:16-20; v. 20 (Behe); 99:1-24; v. 37 (Minnich); 45:22-25-46:1-2; 135:18-21), it does not rule out natural cause explanations for the overwhelming evidence of design found in nature (v. 20 (Behe); 100:2-18; v. 37 (Minnich); 136:17-25-

137:1-4), and methodological naturalism, a convention that places artificial limits on all scientific inquiry (v. 20 (Behe); 100:22-25-102:1), does not rule out intelligent design from being a scientific theory (v. 20 (Behe); 102:2-25-104:1-25; v. 37 (Minnich); 137:14-20). Moreover, intelligent design can bracket the cause of the design found in nature in a manner similar to how the Big Bang Theory can bracket the cause of the “big bang.” v. 18 (Behe); 122:15-25-123:1-125. As Professor Behe noted, some scientists will probably not consider intelligent design a good theory because of its philosophical implications, similar to how some scientists do not consider the Big Bang Theory to be a good theory because of its philosophical implications. v. 18 (Behe); 117:3-25-123:1-10. However, these philosophical concerns do not make either theory less scientific. The Court finds that intelligent design advances a scientific theory.

- d. Plaintiffs misrepresent Professor Behe’s testimony regarding the definition of science. Plaintiffs claim that Professor Behe’s definition of science is not accurate because it would include astrology. (P-FF 46). However, as Professor Behe explained during his testimony, at one time astrology, the forefather of astronomy, was thought to

describe real events by the educated community. v. 21 (Behe) 38:18-25-41:1-8. Plaintiffs' demonstrative exhibit made this point, as Professor Behe demonstrated on cross-examination.³ As Professor Behe explained, "There have been many theories throughout the history of science which looked good at one time which further progress has shown to be incorrect. Nevertheless, we can't go back and say that because they were incorrect they were not theories." v. 21 (Behe) 39:13-17. Thus, the point here is that there has been no a priori definition of science in the history of science and attempts to do so inevitably fail, including the attempt by Judge Overton in the *McLean v. Arkansas Bd. of Educ.*, 529 F.Supp. 1255 (E.D. Ark. 1982). Therefore, this Court declines Plaintiffs' invitation to offer a fixed definition of science that would exclude certain ideas (*see* P-FF 56)—a futile exercise that history has looked upon with great disfavor and even scorn. This is particularly so when, as here, well-credentialed experts, such as Professor Behe and Professor Minnich, have provided compelling evidence that intelligent design is a scientific pursuit.

³Noting that the archaic definition of astrology includes "astronomy." v. 21 (Behe) 40:8-25-41:1-8.

- e. Plaintiffs inaccurately claim that the following statement in *Pandas* is an argument for special creation: “Adherents of intelligent design assume that in the beginning all basic types of organisms were given a set of genetic instructions that harbored variation but were resilient and stable.” (P-FF 110). As Professor Minnich testified, the genetic code (i.e., “a set of genetic instructions”) has been referred to by Nobel laureate Francis Crick as “a frozen accident” and Carl Woes, a prominent Darwinian biologist, claims that the genetic code has not evolved. v. 37 (Minnich); 80:13-16. Moreover, computer analyses have demonstrated that the genetic code is optimized to minimize the effects of point mutations, the very thing required to drive evolution. v. 37 (Minnich); 80:17-25-81:1-5. Thus, *Pandas* is stating what prominent scientists acknowledge.
6. Plaintiffs engage in two fallacies in logic: the fallacy of the *ad hominen* and the genetic fallacy.
 - a. Professor Forrest has no expertise in science or religion and she did not address any of the scientific claims advanced by intelligent design proponents. v. 10 (Forrest); 22:25-23:1-3; 25:21-25-26:1-7. Rather, she admittedly focused her testimony on the philosophical and

theological claims made by certain proponents of intelligent design. v.10 (Forrest); 69:6-22. In fact, the principal target of her *ad hominem* attacks, Professor William Dembski, holds advanced degrees in philosophy and theology, in addition to his doctorate in mathematics. v. 11 (Forrest) 104:4-12. Yet, Professor Forrest excluded Professor Dembski's ideas regarding specified complexity, which he wrote about in a book, *The Design Inference*—a book published by the prestigious Cambridge University Press. v. 10 (Forrest) 27:12-23. Specified complexity is a concept that is part of the argument for intelligent design. v. 17 (Padian); 92:6-11. Professor Forrest's methodology is troubling. As Professor Miller noted in his sworn testimony, just because a scientist makes a statement does not mean that the statement was intended to be scientific. v. 3 (Miller); 89:6-8. Scientists, including Plaintiffs' experts, have made religious and philosophical statements about science. v. 3 (Miller); 88:8-25-89:1-8. Thus, to conclude that intelligent design is not science based on nonscientific claims made by proponents of intelligent design in writings that are admittedly philosophical or theological, as Plaintiffs seek to do in this case (*see*

P-FF 6-11), would be clear error. Simply because a scientific theory is advanced by an individual who happens to belong to a particular faith does not make that scientific theory invalid. v. 9 (Haught) 34:25-35:1-9. Moreover, it is a genetic fallacy in logic to claim that a particular theory is invalid because it comes from a religious person. v. 9 (Haught) 35:10-15. Applying Plaintiffs' logic to other scientific claims such as Darwin's theory of evolution or the Big Bang Theory would render these claims nonscientific as well. As Plaintiffs' religion expert, Professor Haught testified, not only does the Big Bang Theory have religious implications, but all scientific theories have religious implications. v. 9 (Haught) 69:23-25-70:1-7.

- b. Defendants have shown that Professor Forrest is a biased witness who has made significant misrepresentations that demonstrate the untrustworthiness of her testimony and the unreliability of the methodology she employed in forming her opinions. (P-FF 6). Professor Forrest is a member of the ACLU. v. 10 (Forrest); 50:19-20. And she is a member of the Americans United for the Separation of Church and State. v. 11 (Forrest); 63:9-11. Both of these organizations are representing the Plaintiffs in this case. In her sworn

trial testimony, Professor Forrest emphatically asserted the following:

“Dr. Behe, in his capacity as a participant in this movement, reflects the entire program. He does not make scientific presentations about an idea that he purports—that he says is scientific. He does speak frequently about irreducible complexity and other aspects of his work in churches and other religious outlets.” v. 12 (Forrest) 12:15-21.

However, contrary to Professor Forrest’s assertion, Defendants have provided overwhelming evidence demonstrating that Professor Behe has presented his scientific arguments for intelligent design to numerous and prestigious academic groups and science organizations.

v. 18 (Behe); 57:21-25-70:1-9; D 300 E, F, G, H, I. Additionally, in another assertion indicative of Professor Forrest’s questionable testimony, she stated the following: “[W]hen [Professor Behe] spoke of the Nature of Nature conference at Baylor, that was a conference that was organized by creationists. It was organized by members of the Discovery Institute. The Foundation for Thought and Ethics had a hand in that. That was not a bona fide scientific meeting.” v. 12

(Forrest) 16:11-16 (emphasis added). Professor Forrest did not attend this conference. Professor Behe, however, did attend, and he testified

as to the nature of this conference, explaining that there were approximately 50 speakers who participated, including a physicist from MIT, who is a member of the National Academy of Sciences, Simon Conway Morris, a paleontologist from Oxford University and a fellow of the Royal Society, which is England's equivalent of the National Academy of Sciences, a biology professor and biochemist from New York, who is a member of the National Academy of Sciences, and a Nobel laureate biochemist who teaches at the Catholic University in Belgium. v. 18 (Behe) 63:3-25-64:1-23. As Professor Behe testified, to describe this conference as a "creationist conference" "would surprise many of the speakers there. I would say that, that's simply ludicrous. And I think it says more about the person making such a comment than it does about the conference itself." v. 18 (Behe) 64:24-25-65:1-6. This Court agrees with Professor Behe's assessment.

- c. The "Wedge Document"/ "Wedge strategy" / drafts of *Pandas* are not helpful. Professor Forrest's opinions are based in large measure on a fundraising document that was purportedly stolen from the offices of The Discovery Institute. (See P-FF 9-11); v. 10 (Forrest) 40:22-25-

41:1-13. (See P-FF 6, 9-11). Yet, she failed to consider or address The Discovery Institute's primary source document that explains the so-called "Wedge Document." v. 10 (Forrest) 42:2-25-43:1-19. In fact, by her own admissions, Professor Forrest has never interviewed or spoke to any Discovery Institute employee or fellow regarding the so-called "Wedge Strategy," allegedly described in this document. v. 10 (Forrest); 41:13-25-42:1. Moreover, she admitted that she had no evidence that the DASD board members had any knowledge of the "Wedge Document." v. 10 (Forrest) 50:2-6. And she admitted that she had no evidence that the people who prepared the DASD policy at issue were acting under the guidance of the so-called intelligent design movement. v. 10 (Forrest) 50:7-14. Additionally, Professor Forrest admits that there is no evidence that any DASD board member or administrator was aware of the various drafts of *Pandas*. v. 12 (Forrest); 41:24-25-42:1-3. Professor Forrest also admits that there was no evidence that any DASD board member or administrator had any substantive contact or conversations with FTE or John Buell. v. 12 (Forrest); 42:16-22. This Court so finds.

d. Thus, the “Wedge Document,” the “Wedge Strategy,” the prior drafts of *Pandas* and the conclusions that Plaintiffs seek to draw from them are not determinative in this case. (See P-FF 9-11). Not only is it not appropriate for this Court to consider the motivations of the individual board members, as required by the case law, it would further compound error for this Court to consider the motivations of so-called “Wedge leaders” or others who had no part in crafting the policy at issue in this case. As this Court stated during the testimony of Professor Minnich, “[I]t is not central or necessarily important to me that we engage in an independent debate on The Discovery Institute. It’s just not helpful to me, and I’ll tell you that.” v. 37 (Minnich); 20:21-24. Thus, it is not helpful, and in this Court’s estimation, it would be error to make any findings in this case based on The Discovery Institute, the so-called “Wedge Document” or “Wedge strategy,” or the motives and actions of FTE or any of its employees or affiliates.

7. Plaintiffs advance flawed arguments in an effort to disqualify ID from science. Applying Plaintiffs’ flawed arguments and logical fallacies to Darwin’s theory of evolution would demonstrate that it is not science, but

rather a philosophical and theological proposition that promotes certain religious beliefs (“theistic evolution” and secular humanism) depending upon one’s worldview or that it is inherently hostile to certain religions.

Therefore, based on Plaintiffs’ arguments, it would violate the Establishment Clause to teach Darwin’s theory in a public high school biology class. (See P-FF 6-11, 13, 14, 18-20, 28, 30, 31, 46, 47, 48).

- a. By Plaintiffs’ Flawed Logic Darwin’s theory of evolution endorses and promotes the religious belief of “theistic evolution.” Professor Miller, for example, has very strong religious views regarding science, in particular, evolution, which he has published in a book called *Finding Darwin’s God*. v. 3 (Miller); 89:9-20; D-223. Even the National Academy of Sciences officially endorses this particular religious belief, which is known as “theistic evolution.” v. 21 (Behe) 80:6-25-82:1-3; P-718 at 696 (proclaiming that “‘theistic evolution’ is not in disagreement with scientific explanations of evolution.”).

Applying Plaintiffs’ logic and arguments, based on the statements of “Darwinian leaders” teaching Darwin’s theory of evolution advances a religious belief, theistic evolution, which would violate the Establishment Clause.

- b. Professor Miller testified that God created the universe. v. 3 (Miller); 63:5-9. He is, therefore, admittedly a creationist because he believes in some sort of creation event. v. 3 (Miller); 63:10-19. Professor Miller testified that God is the author of all things, including the laws of physics and chemistry. v. 3 (Miller); 63:20-25-64:1-3. He testified that God is responsible for evolution. v. 3 (Miller); 64:4-20. Therefore, according to his testimony, evolution presupposes a creator. v. 3 (Miller); 64:4-20. Professor Miller testified that evolution is consistent with his religious beliefs. v. 3 (Miller); 64:21-23. He testified that faith and reason are compatible and complementary. v. 3 (Miller); 64:24-25-65:1-2. Professor Miller testified that if one were to apply faith and reason correctly as objective and reliable tools for the nature of the world around us, ultimately the conclusions of both should complement each other. v. 3 (Miller); 65:3-9. He testified that when he reads the biblical account of creation in the Book of Genesis, he sees a series of commands of the Creator to the earth and its waters to bring forth life, and he believes that this is what happened, which is that the earth and its waters and so forth brought forth life, and that this account is

consistent with natural history, which underlies evolutionary theory.

v. 3 (Miller); 68:1-18. In *Finding Darwin's God*, Dr. Miller wrote, "What kind of God do I believe in? The answer is in those words. I believe in Darwin's God." D 223 at 292. Thus, applying Plaintiffs' logic and arguments, based on the writings and testimony of Professor Miller, it would violate the Establishment Clause to teach Darwin's theory of evolution in a public school biology class.

- c. In *Finding Darwin's God*, Professor Miller quotes from *The Origin of Species* in which Charles Darwin stated, "There is grandeur in this view of life; with its several powers having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most wonderful and most beautiful have been, and are being evolved." D 223 at 292 (emphasis added). Ironically, the fact that Darwin expressly identifies a "Creator" in his seminal work would not cause Plaintiffs' experts to remove this book from the classroom or to prevent reference to it in the curriculum. v. 6 (Haught); 64:3-8; v. 12 (Forrest); 50:8-16.⁴ Yet,

⁴Professor Miller's textbook, *Biology*, refers to and discusses the *Origin of Species*. D 214 at 378-79.

based on Plaintiffs' logic and arguments, this book would have to be excluded and not even mentioned in a ninth-grade biology course under their view of the Establishment Clause.

- d. By Plaintiffs' Flawed Logic Darwin's theory of evolution promotes the religion of secular humanism. According to Plaintiffs' religion expert, secular humanism is a religion. v. 9 (Haught) 67:14-22. Professor Forrest, for example, is affiliated with secular humanist organizations, and she has a secular humanist worldview. v. 10 (Forrest) 34:11-21. Methodological naturalism, the artificial constraint that Plaintiffs seek to impose on scientific inquiry, is in accord with the worldview of secular humanists. v. 10 (Forrest) 34:16-21. Secular humanism rejects efforts to explain the world in supernatural terms and to look outside of nature for salvation. v. 11 (Forrest) 67:10-25-68:1-13. Secular humanism is committed to the use of critical reason, factual evidence, and scientific methods of inquiry rather than faith and mysticism, in seeking solutions to human problems and answers to important human questions. v. 11 (Forrest) 71:6-17. Secular humanism holds that humans are the result of unguided evolutionary change, and humanists recognize nature as

self-existing. v. 11 (Forrest) 93:17-21. Thus, the theory of evolution is something that virtually all secular humanists endorse. v. 10 (Forrest); 34:25-35:1. Therefore, based on Plaintiffs' logic and arguments, teaching Darwin's theory of evolution and promoting methodological naturalism endorses the religion of secular humanism, which would violate the Establishment Clause.

- e. By Plaintiffs' Flawed Logic Darwin's theory of evolution is inherently hostile to religion. According to prominent Darwinian biologist, Richard Dawkins, "Darwin made it possible to be an intellectually fulfilled atheist." He wrote this in *The Blind Watchmaker*, a book described by Professor Forrest as "a classic popular explanation of evolution theory." v. 10 (Forrest); 51:13-25-52: 1-15. Prominent Darwinian paleontologist, Stephen Jay Gould, claimed, "Biology took away our status as paragons created in the image of God," and "Before Darwin we thought that a benevolent God had created [us]." v. 10 (Forrest); 53:10-20. Thus, based on primary source data—which Professor Forrest considers the most reliable—such as the statements of these prominent "Darwinian leaders," and applying Plaintiffs' logic and arguments, a court would

be compelled to find that Darwin's theory of evolution is inherently a theological and philosophical proposition that is hostile to religion; therefore, it would violate the Establishment Clause to teach this theory in a high school biology class.

- f. In conclusion, an evenhanded application of Plaintiffs' logic and arguments would compel a court to conclude that teaching Darwin's theory of evolution in a ninth-grade biology class would violate the Establishment Clause. The error of this conclusion demonstrates the errors in logic and argument that Plaintiffs have presented. Thus, this Court finds that making students aware of intelligent design in a ninth-grade biology course does not offend the Establishment Clause.
8. DASD's policy promotes valid educational goals.
 - a. Contrary to Plaintiffs' assertions (P-FF 292-311), Defendants did present expert evidence that clearly demonstrates the valid educational purposes served by DASD's modest curriculum change. Professor Behe has taught science at the college level for 23 years. v. 18 (Behe); 22:15-16; 24:11-14. In fact, he has taught a college course on popular arguments on evolution for 12 years. v. 18 (Behe); 23:21-25-24:1-10. He was qualified to testify as an expert in science

education in this case. v. 18 (Behe); 83:10-13; 85:16-18.

Additionally, Professor Minnich testified as an expert in science education. v. 37 (Minnich); 42:10-13; 44:22-25. Professor Minnich has taught science at the college and graduate level for 18 years. v. 37 (Minnich); 7:23-25-8:1. Based on Defendants' experts' opinions, DASD's policy promotes good science education and advances secular educational goals, including critical thinking. v. 18 (Behe); 13-18; v. 20 (Behe); 86:11-23; v. 21 (Behe); 20:16-25-22:1; v. 37 (Minnich); 47:12-17; v. 37 (Minnich); 144:12-23; v. 18 (Behe); 54:18-25-55:1-8; 56:5-16; 88:19-25; v. 21 (Behe); 10:7-25-11:1-3; v. 37 (Minnich); 35:23-25-36:1-12; 47:18-24; v. 37 (Minnich); 144:24-25-145:1-6.

- b. As Plaintiffs' experts readily acknowledge, the purpose of a ninth-grade biology course is not to train scientists, but to contribute to the liberal education of the students. v. 3 (Miller); 48:15-21; v. 15 (Alters); 20:19-22. As the evidence overwhelmingly shows, intelligent design is being discussed and debated by scientists and other academics in the scientific literature, in academic and scientific conferences and symposia, and in the popular media and literature. v.

18 (Behe); 57:21-25-70:1-9; D 300 E, F, G, H, I; v. 18 (Behe); 67:22-25; 68:1-12, 20-23; v. 18 (Behe); 77:17-25-79:1-6; 81:18-25-82:1-11; 203-I; v. 18 (Behe); 79:16-25-80:1-4; v. 18 (Behe); 80:13-25-81:1-6; D 203-J; D 203-H; v. 18 (Behe); 82:12-20; v. 19 (Behe); 48:12-25-54:1-5; v. 2 (Miller); 64:1-25-65:1-7; v. 2 (Miller); 82:17-25-83:1-2. v. 2 (Miller); 69:24-25-70:1-19. v. 2 (Miller); 75:13-16; v. 2 (Miller); 75:17-25-76:1-14. Making students aware of intelligent design in a ninth-grade biology class unquestionably serves a valid educational purpose (*compare* P-FF 291-311). v. 18 (Behe); 88:1-25; v. 21 (Behe); 22:2-4; v. 37 (Minnich); 145:7-10; v. 18 (Behe); 88:13-18; v. 20 (Behe); 86:11-23; v. 21 (Behe); 20:16-25-22:1; v. 37 (Minnich); 47:12-17; v. 37 (Minnich); 144:12-23. To censor ideas, as Plaintiffs' seek to do in this case, is what truly makes students "stupid." (*Compare* v. 17 (Padian); 51:17).

9. Exaggerated claims by Plaintiffs' experts demonstrate their bias.
 - a. Without any connection to the text of the short statement that is at issue in this case, Professor Padian made the remarkable claims that this statement would cause student to question why there is suffering and what good is prayer (*see* P-FF 306). v. 17 (Padian); 53:20-25-

54:1-2. As Professor Behe testified, “It’s hard to—it’s hard to know what to say to something like that. . . . [I]t strikes me as utterly unconnected to the text of the statement that was read, and I can’t imagine where Professor Padian is getting this from. I doubt that it’s from his paleontological expertise. . . . [I]t says more about where he’s coming from, more about where—what he’s thinking, his frame of mind, than it says about the statement itself.” v. 21 (Behe); 14:25-15:1-14. The Court agrees with Professor Behe’s assessment.

- b. Similarly, Professor Alters made the claim that this short statement would introduce students to a “God-friendly” science (*see* P-FF 304). v. 14 (Alters); 144:12-25-145:1-7. As Professor Behe pointed out, Professor Alters’ opinion was “histrionic” and “utterly unconnected to the text of the statement.” v. 21 (Behe); 13:22-25-14:1-19. Professor Behe concluded, “[I]t makes me suspect that the reaction has to do more with Dr. Alters’ conceptions and misunderstandings and other things than it has to do with the statement itself.” v. 21 (Behe) 13:22-25-14:1-24. This Court shares Professor Behe’s suspicion.

10. The Plaintiffs effort to disqualify ID from science based on experts in the philosophy and history of science is unpersuasive.

a. The Plaintiffs have plainly mischaracterized the thrust of Fuller's testimony, including the import of the parts cited in the findings.

- i. In P-FF15, Fuller's deposition testimony is taken out of context. Fuller's testimony actually stands for the idea that intelligent design challenges some of the fundamental ideas of science and that intelligent design would unify certain branches of science such as cosmology, physics, and biology. Fuller Dep. at 116. Fuller's testimony supports the idea that intelligent design's project is to include the possibility of the "supernatural" in the realm of scientific inquiry. v. 28; p. 20:17–21. As Fuller made clear ID is open to, but does not require, supernatural causation. v. 27; p. 103:5–p. 104:3. Plaintiffs' expert Robert Pennock admits that scientists already work on subjects thought to be "supernatural." See below.
- ii. Moreover, this distinction is tremendously important when one considers that, as Fuller makes clear, the history of science has been one whereby things once thought supernatural have been

naturalized—an artificial constraint on scientific inquiry might well harm science (see e.g. the criticism of Newton below).

Thus the difference between necessary reliance on supernatural causation and openness to the possibility of causation deemed supernatural is extremely important.

- iii. Contrary to P–FF 28, the Plaintiffs’ citation to Fuller’s association of ID and creationism is wholly misplaced. Fuller’s point, both in his deposition and at trial, is that this association in terms of “context of discovery” plainly does not disqualify ID from science. Fuller Dep. at 147; v. 28; p. 102:19–107:22.
- iv. In P–FF 53, Plaintiffs rely on Fuller’s deposition testimony for the proposition that intelligent design is not a theory as that term is defined by the NAS. Fuller Dep. at 98. But the point of Fuller’s testimony is that the NAS definition is flawed because it would disqualify all new theories from science, i.e. the notion that every new theory is born refuted. v. 27 (Fuller); p. 104:8–21.
- v. In P–FF 301, Plaintiffs mischaracterize Fuller’s testimony regarding the implications of the statement. First, Fuller was

expressing some measure of sympathy with Miller's concerns but he also noted that the problem was ameliorated in part when the statement defines theory as a well tested explanation. Fuller Dep. at 110–11.

- b. As for Pennock, his testimony does not disqualify ID from science.
 - i. Pennock admits that metaphysical extrapolation does not make scientific theories nonsense. v. 5; p. 66:15–p. 68:18.
 - ii. He admits that Newton was criticized for having departed from naturalism when Newton discovered—and naturalized. v. 5; p. 74:20–p. 77:11. No one doubts that the law of gravity is scientific not supernatural.
 - iii. He admits that scientists work on phenomena currently considered supernatural. v. 5; p. 78:1–p. 79:25.
 - iv. He admits that philosophers of science do not agree about the validity of methodological naturalism. v. 5; p. 84:2–13.
- 11. Contrary to P–FF 135–161, the Court finds that the Plaintiffs have not proven that Bonsell's interest in Creationism was an interest in securing the teaching of Creationism in Dover schools because the weight of the evidence does not support this claim. D–FF 567–573.

- a. As noted, by Bonsell and other witnesses, Bonsell believes Creationism and ID are two different things.
- b. Bonsell sees Creationism as religion and ID as science.
- c. He sees ET and ID as addressing the origins of life from a scientific standpoint.
- d. The evidence shows that Bonsell's criticisms of ET were scientific, not religious, in nature, which shows that Bonsell was approaching this issue from the standpoint of his admittedly limited but good faith belief that exaggerated/unsubstantiated claims were made for ET, which had serious gaps and problems; and that ID was a scientific theory which both highlighted gaps/problems in ET which offered a rival scientific theory concerning the origins of life. v. 26 (Baksa); p. 63:7– 64:17; v. 36: p. 61: 25–p. 65:4.
- e. Bonsell came away from the meeting with science faculty in the Fall of 2003, in which Miller told him that she taught that new species originate from existing species, see P–FF 155, and he did not ask for any change to the science text or curriculum. D FF 140–148.
- f. Further, Bonsell's conduct did not evidence a determination to add ID to the curriculum himself. As evidenced by the memo Baksa

prepared in anticipation of the BCC meeting held on October 7, 2004, Bonsell did not even insist on the express reference to ID. He agreed to include this at the BCC meeting in an effort to create a compromise. D–FF 357–373.

- g. Moreover, both ID and ET share some measure of consistency with Bonsell's religious convictions so there is no persuasive reason to believe that consistency with religious convictions was Bonsell's motive for supporting the curriculum change.
- h. Bonsell's daughter will be present for instruction in ET so there is no persuasive reason to believe that he has some insuperable religious objection to the presentation of ET.
- i. Taken together these facts show that Bonsell agreed with Buckingham that there making students aware of gaps and problems in ET and the existence of other theories of evolution was a legitimate educational goal but he had no strong agenda that he brought to the process, never mind a religious agenda.
- j. Bonsell admits he must have mentioned Creationism at Board Retreats although he cannot recall what he said. This lack of memory is no grounds to discount his testimony because witnesses favorable

to the Plaintiff likewise had no recollection of what Bonsell said at these meetings. This Court will not discount Bonsell's testimony because he has forthrightly and honestly stated that he cannot remember exactly what he said during two 2 minute segments of two meeting, one taking place in January of 2002, the other in March of 2003. D FF 44, 76–81.

k. Despite Bonsell's readily understandable inability to remember exactly what he said about Creationism, the weight of the evidence demonstrates that Bonsell's interest in Creationism was an interest in whether and how the subject was addressed by teachers not an interest in having it taught.

i. As an initial matter, it appears to this Court that Bonsell's interest in Creationism was no more than a natural interest in whether and how teachers addressed the relationship among ET, origins of life, and Creationism which was shared by the various individuals and institutions that appear in the record in this case.

(1) For example, the issue that interested Bonsell was acknowledged by the biology teachers, Miller and Linker

before he ever spoken with them. The evidence shows that it was this natural interest which apparently resulted in the practice whereby biology teachers mentioned Creationism as a preface to their teaching of ET, and, in addition, told students with questions about the origins of life to discuss that matter with their parents etc. D FF 256.

- (2) It was acknowledged by Spahr and Peterman (who instructed teachers to continue to mention Creationism as another theory of evolution) implicitly recognizing its relevance; D-1; D FF 93-101.
- (3) It was acknowledged by Nilsen who sent Baksa to the seminar on Creationism and the Law because he knew Baksa would be dealing with the biology text and curriculum; D FF 56-66.
- (4) It was acknowledged by the Pennsylvania School Board Association, which sponsored the seminar Baksa attended, and during which well credentialed academics emphasized that teaching Creationism while presenting

their view that some discussion of Creationism would actually enhance the presentation of ET.

- (5) It was acknowledged by Plaintiffs' expert Brian Alters who testified that the relationship between religious beliefs and ET is an issue that teachers need to address with sensitivity to the religious beliefs of their students by avoiding false conflicts between ET and religious beliefs. v. 14 (Alters); p. 86:14–p. 90:8.
 - (6) Further, the record is replete with statements taken by public and private organizations concerning the need to address the relationship between ET and Creationism with care.
- ii. This evidence shows that Bonsell's interest cannot be taken as evidence of an unlawful agenda—for the same reason one would not impute an unlawful motive to any of the others just noted.
 - iii. Moreover, Bonsell has also exhibited an interest in the Social Studies Curriculum as of 2002 but never called for any change to that curriculum, so the expression of interest cannot be taken